

FEMP

FEDERAL ENERGY MANAGEMENT PROGRAM

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FOCUS

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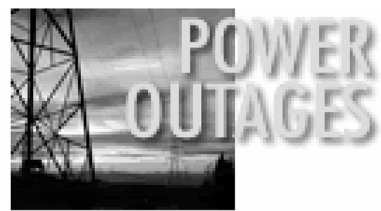
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Your Partner
in Making
Projects
Happen!***



ELECTRIC SYSTEM RELIABILITY

Extreme temperatures during the summer of 1999 stretched the capabilities of electrical generating and transmission systems in parts of the country. As a result, utilities in many areas implemented rolling blackouts, requested voluntary reductions, and asked companies to operate emergency generators.



Department of Energy (DOE) Secretary Bill Richardson, in a July 19, 1999 speech (www.doe.gov/news/speeches99/julss/naruc.htm) to the National Association of Regulatory Utility Commissioners, announced a six-point initiative to help prevent power outages:

1. Step up development of new standards to get more efficient air conditioners in people's homes.
 2. Form a team to investigate major power outages and recommend ways to avoid reoccurrences.
 3. Examine whether enough generating capacity exists, and whether planned additions will meet future demand.
 4. Organize regional summits to examine Summer 1999 problems and avoid future problems.
 5. Devise a plan for Federal agencies to take emergency actions to cut electricity consumption.
 6. Work with Congress to ensure full funding for advanced generation and transmission technologies and energy efficiency programs.
- To address these points, the Department of Energy is undertaking the following efforts:
- DOE's Office of Building Research and Standards plans to issue proposed rules for more efficient air conditioners in August 2000.


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**The Secretary of Energy**

Washington, DC 20585

June 26, 2000

MEMORANDUM FOR ALL CABINET PRINCIPALS

FROM: BILL RICHARDSON 

SUBJECT: Emergency Electricity Reduction Measures -- Federal Facilities

Extreme temperatures during the summer of 1999 stretched electrical generating and transmission systems to the limit in some parts of the country, resulting in rolling blackouts, voltage reductions, and urgent appeals from utilities for voluntary reductions.

Last fall, the Department of Energy (DOE) formed a team of experts to study some of the summer 1999 events. This Power Outage Study Team (POST) issued its final report on March 13, 2000. The POST report concluded that a new framework for reliability is needed to keep pace with the reforms sweeping the electricity industry. This report implies something else: things may get worse before they get better.

I have also co-hosted eleven regional reliability summits with Governors, local officials, State public service commissions, State energy offices and utilities, and plan to conduct three additional summits in the near future. These summits have demonstrated that there is substantial public concern that when summer temperatures rise, lights will stay on and air conditioners will continue to hum.

The Federal Government, as the Nation's largest energy user, has an excellent opportunity to assist by initiating emergency electrical load reduction measures in response to appeals from utilities. The DOE, working with agency energy managers, has developed the attached *PLAN OF ACTION, EMERGENCY ELECTRICAL REDUCTION MEASURES -- FEDERAL FACILITIES*.

I understand that many Federal facilities have already developed load reduction plans and have good communications with their utility to enhance emergency response, I and applaud their efforts. However, I urge you to ensure that all your facilities are equally prepared to respond, so that the Federal Government is viewed as a good neighbor. In an era of tight budgets, these actions can have the added benefit of reducing costs and freeing up funds for other urgent needs. I will soon be delivering public service announcements with helpful hints for customers to reduce their electricity use and power bills. Meanwhile, we in the Federal Government need to "Walk the Talk" to provide convincing leadership.

Attachment



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PLAN OF ACTION

EMERGENCY ELECTRICITY REDUCTION MEASURES- FEDERAL FACILITIES

BACKGROUND

Extreme temperatures during the summer of 1999 stretched the capabilities of electrical generating and transmission systems in parts of the country. This resulted in: (1) Rolling blackouts; (2) Voltage reductions; (3) Requests from utilities for voluntary reductions; (4) Interruptible power curtailments; and, (5) Requests from utilities for companies to operate emergency generators.

Energy Secretary Bill Richardson, in a July 19, 1999 speech to the National Association of Regulatory Utility Commissioners, announced a six-point initiative to help prevent power outages. Secretary Richardson's speech is available at: www.doe.gov/news/speeches99/julss/naruc.htm. This plan addresses point five of the initiative: **"Lead by Example** - So that the federal government is ready to take emergency actions to cut electricity consumption in its buildings and facilities when utilities make urgent appeals for conservation, we will work with the General Services Administration to devise a plan of action."

Many Federal facilities already realize the financial benefits of planning for electrical load reductions, and have excellent plans in place. The experience gained by these facilities forms the basis of this Federal-wide plan to be implemented by all Federal facilities in support of local electrical use reduction efforts. Individual facility plans should be customized to site specific conditions. The requirement for emergency conservation plans is contained in Title 10, Code of Federal Regulations, Part 436, Subpart F, Paragraph 436.105.

GENERAL

1. Establish/enhance communications with the local utility company. Understand their needs for load reductions. Work with the local utility to develop the individual facility plan. An example is the Potomac Electric

Power Company's (PEPCO's) Curtailable Load Program. During the summer of 1999, participating Federal agencies in the Washington, DC area provided an estimated eight megawatts of peak load reduction on five occasions when requested by PEPCO, assisting PEPCO, and enhancing grid reliability.

2. Identify load reduction measures appropriate for the facility. Investigate separating loads into: (1) Life, health and safety driven; (2) Mission critical; and, (3) Non-critical. If not separately switchable, investigate modifying systems to allow terminating or reducing non-critical loads.
3. Establish a system to alert employees of expected high demand days including, but not limited to E-mail, voice mail, or public address announcement to all employees. Communicate early to allow employees to take load reduction measures at home and to dress appropriately.
4. Monitor total facility demand and demands for individual major loads (if separate metering is available). Monitor weather forecasts to predict high demand days and be proactive in communicating with the local utility to assess need to reduce load.
5. Initiate load reduction measures. Employees can take steps to reduce lighting, personal computers and appliances electricity use. While energy efficiency should be encouraged on a daily basis, stress the need for increased diligence to alleviate the emergency. Air conditioning operating changes and other system-wide measures should be accomplished by facilities management. Federal facilities that have energy management and control systems are well suited for this task. Facilities should also

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**PLAN OF ACTION
EMERGENCY ELECTRICITY REDUCTION MEASURES-
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consider additional measures appropriate for site specific circumstances.

6. Encourage employees to reduce electrical loads in their homes, to reduce demand on the utility system. If no one is at home during the workday, unneeded appliances and lights should be turned off, and air conditioning thermostats should be set higher before departing for the day. Also, some utilities offer cost incentives to residential customers who allow the utility to remotely cycle off power to air conditioning and electric water heating systems. Periods without power are limited, so that comfort is not sacrificed. Encourage employees to participate in these programs, to assist the local utility, while reducing their electricity bill.
7. Enhance employee awareness of energy efficiency through training and less formal methods. Provide mandatory and voluntary training opportunities on smart energy practices so that employees can practice energy efficiency during emergency periods and year-round. In addition to training, run public service announcements about energy efficiency on televisions in cafeterias and other public use areas; send periodic e-mail messages about turning off lights and computers and implementing other efficiency practices; post signs or billboards near light switches or communal printers; and consider holding annual energy fairs prior to seasonal emergency periods to provide additional information for employees about how to manage energy use in the work place and in their homes.

LIGHTING MEASURES

1. Turn off fluorescent lights when leaving an area for more than 1 minute. (During non-emergencies, 5 minutes is recommended, to keep from excessively reducing lamp life). Turn off incandescent lights when leaving

areas for any period of time.

2. In areas with sufficient daylighting, turn off lights. Adjust blinds, if available, to reduce glare.
3. Use task lighting and turn off general lighting, where it is feasible to maintain sufficient lighting levels for safety and productivity.
4. Turn off display and decorative lighting.

PERSONAL COMPUTERS AND APPLIANCE MEASURES

1. Turn off printers when not in use.
2. Turn off monitors when not in use.
3. Ensure ENERGY STAR power down features are activated.
4. If computers do not have ENERGY STAR features available, turn them off when leaving the office for more than 30 minutes.
5. Ensure personal appliances, such as coffee pots and radios are turned off.

AIR CONDITIONING MEASURES

1. Precool building(s) below normal temperature settings prior to onset of peak demand period. Make sure to tell employees about this practice, so that they will not operate space heaters. During peak demand period, allow space temperatures to drift back up to normal settings (or as much as 5 degrees Fahrenheit (°F) above normal settings).
2. Allow casual attire, to make higher temperatures more acceptable.
3. Where systems allow, lower chilled water temperatures several degrees below normal settings prior to peak periods, and allow to drift above normal settings during peak periods.

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LEAD by EXAMPLE

POWER DOWN *On Energy Waste*

For government workers, electricity is mission critical.

For others in the community – like the elderly – it can be a matter of life and death.

When heat waves strike, take action to ensure reliable power supplies.

It's as easy as 1, 2, 3...

LIGHTS

1. Turn off lights when leaving a room for more than a minute.
2. Turn on task lights; turn off general and overhead lights.
3. Turn off display and decorative lights.

EQUIPMENT

1. Turn off printers, copiers, personal computers, and monitors when idle.
2. Activate and use the **ENERGY STAR**® "power saver" and "sleep" features.
3. Shut off coffee pots, radios, fans, and other appliances in the office.

AIR CONDITIONING

1. Set thermostats to pre-cool spaces at off-peak times.
2. Loosen clothing and dress casually during the warmest hours.
3. Make certain vent grills are not blocked by plants, books, or furnishings.



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Motivating End Users this Summer

End users play a key role in managing energy use. This is especially true in emergency situations, where reducing and managing demand is the key to avoiding power interruptions. Recent FEMP pilot studies of military housing residents provide suggestions for enlisting energy end users in the effort to reduce energy consumption this summer.

FEMP's pilot studies demonstrate the need to both motivate end users and provide them with practical information. Residents at Fort Lewis, Washington, and Yuma Marine Corps Air Station, Arizona, responded to motivational and informational campaigns by decreasing their energy use (compared on a weather-corrected basis with energy use in the previous year). Fort Lewis had a 10 percent reduction in use for the year. At Yuma, there was a 15 percent reduction during the final month of the campaign. The FEMP *You Have the Power* campaign was adapted for use at both sites.

As these pilots demonstrate, a successful campaign for reductions in energy end use contains several key ingredients. Perhaps most important is the enthusiastic support of all levels of management - in this case, the base commander, and the housing and energy managers. Messages should also come through communications channels that people know - such as the facility's electronic billboard and base newspaper. For example, at both sites, energy fairs raised awareness, and in Yuma, information and educational activities were made available to childcare providers for their summer programs.

Moreover, people need to both see and hear about efficient behaviors. At both facilities, videotapes showed an "energy bandit" and residents working to combat the bandit by turning down thermostats, cleaning AC filters, and so forth.

Most residents who completed surveys at both federal installations said that they were motivated to save energy, first and foremost, because "it's the right thing to do." Secondly, they wanted to set a good example for their children. Some suggested that saving money would be a powerful motivator if people had to pay penalties for exceeding a set level of energy use. The threat of energy shortages can also be motivational, provided that people feel

everybody is making some sacrifices, that what they are doing is making a difference, and that their efficient behavior generates benefits for them, such as more comfortable conditions.

Energy and housing managers should tailor their campaigns to the existing physical conditions and cultures at their Federal facility. If they do, they can tap into a large potential source of energy savings. Since the Yuma facility experiences high heat and humidity in the summer, the FEMP campaign focused on air conditioning and lighting tips, including the following:

- Keep your thermostat set to 80 degrees or higher.
- Clean AC air filters at least once a month.
- Close windows and doors and use shades when the air conditioner is on.
- Turn outside lights off during daylight hours.
- Use compact fluorescents instead of incandescent light bulbs.

If you would like to conduct a campaign to reduce energy end use at your facility, the *Handbook for Promoting Behavior-Based Energy Efficiency in Military Housing* provides tips and strategies. It is available at www.eren.doe.gov/femp/yhttp/strategies.html.

If you would like a copy of the videotape, *MCAS Yuma's Energy Bandit*, contact Annie Haskins at annie.haskins@ee.doe.gov.

Federal agencies and State Energy Offices will be receiving materials from FEMP to motivate end users to reduce energy consumption this summer. Limited additional quantities are available from the Energy Efficiency and Renewable Energy Clearing House at 1-800-363-3732 or order from <http://www.eren.doe.gov/femp/ordermaterials.html>.



**PLAN OF ACTION
EMERGENCY ELECTRICITY REDUCTION MEASURES-
FEDERAL FACILITIES**
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4. Duty cycle air handling units off. Ensure adequate outside air flow rates to maintain indoor air quality.
5. Ensure that ventilation grilles and fan coil units are not blocked by books, flowers, debris, or other obstructions. This will improve air conditioning system efficiency and improve comfort.

OTHER

1. Operate emergency generators (many agencies have negotiated financial incentives from their local utility for operating generators). Ensure that generators have ample fuel for emergency operation and have been tested routinely. Turn off shore power to ships in dock and operate ship power systems. Make mobile utility system electrical generating equipment available to the local utility.
2. Shut off selected elevators and escalators. Ensure accessibility needs are met.
3. Where feasible, schedule high electrical energy use processes during off peak periods.
4. Encourage employees to not use copiers during peak demand period. Turn off selected copiers. Ensure power saver switch on copiers is enabled.
5. Turn off unnecessary loads such as fountain pumps.

LONG TERM SOLUTIONS

1. Consider purchasing interruptible power for selected loads with high electrical demand, and which will not suffer adverse consequences in the event of the utility turning off power. The cost savings from the lower rate may far outweigh the inconvenience of power being turned off within the interruption limitations agreed to in the utility contract.
2. Consider installing sub-metering to identify high intensity loads to be shed during emergencies.

3. Investigate thermal storage systems or alternative energy sources for air conditioning.
4. Install motion sensors and separate lighting circuits to allow turning off unneeded lights. (Some agencies have installed switching to separate public areas from agency work spaces).
5. Install an Energy Management and Control System to allow shedding and monitoring loads from one central location. If non-critical loads are not separately switchable, modify systems to allow terminating. Local utilities or energy services companies (ESCOs) can assist with this effort.
6. Consider adding on-site generation using micro-turbines, fuel cells, combined heat and power, renewable, or other appropriate technology.

ELECTRIC SYSTEM RELIABILITY
continued from page 1

- Secretary Richardson brought together a team of experts to study some of the problems that the nation faced during the Summer of 1999. This team, the Power Outage Study Team (POST), issued its final report on March 13, 2000 (Visit www.doe.gov under *Department Highlights* for full report.)
- Secretary Richardson conducted eight regional reliability summits with governors, local officials, state public service commissions, state energy offices and utilities, and plans to conduct additional summits.
- DOE's Office of Policy plans to issue a report that examines the adequacy of current generation capacity.
- DOE, in consultation with other Federal agencies, developed a plan of action for Federal facilities which is featured on Page 3. The plan was issued to all Federal agencies along with Secretary Richardson's memorandum to Cabinet heads. Secretary Richardson's memorandum, which urges each agency to develop its own action plan, appears on page 2.

Secretary of Energy's Reliability Summits

The following is a list of reliability summits that Secretary Richardson has conducted with governors, local officials, state public service commissions, state energy offices and utilities to discuss the issue of power outages. For a transcript of each speech, visit www.doe.gov/news/newsss.htm.

Tallahassee Reliability Summit
June 30, 2000

Richmond Reliability Summit
June 19, 2000

Phoenix Reliability Summit
June 16, 2000

Texas Reliability Summit
May 26, 2000

Northwest Reliability Summit
May 11, 2000

California Reliability Summit
April 28, 2000

Mid-south Reliability Summit
April 24, 2000

New England Reliability Summit
April 24, 2000

Mid-Atlantic Reliability Summit
April 24, 2000

Midwest Electricity Summit
October 8, 1999

Akron, Ohio
May 31, 2000

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